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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,961	02/09/2001	Joseph Melekian	60,130-930	7580

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EXAMINER

MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
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1725

8

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/779,961

Applicant(s)

MELEKIAN ET AL.

Examiner

Kevin L McHenry

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Gale (U.S.P. 1,323,178).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178;

Art Unit: 1725

particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Gale. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding method taught by Gale as a specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

3. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Gale (U.S.P. 1,323,178) as applied to claims 1-3, and 9-20 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 3.

Art Unit: 1725

However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

4. Claims 1, 6 and 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Larsen (U.S.P. 4,552,609).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Larsen teaches a process of friction welding surfaces together in which one surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Larsen. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding method taught by Larsen as a specific welding means for fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a

Art Unit: 1725

substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

5. Claims 1, 6, 7, and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glaze et al. (U.S.P. 4,754,847) in view of Danjou et al (U.S.P. 5,442,977) and Brownell et al. (U.S.P. 6,095,402), Walker et al. (U.S.P. 6,106,233), or Mahoney et al. (U.S.P. 6,237,834).

Glaze teaches a differential housing that has a curved surface and has a snorkel, particularly a rear housing portion, fastened to its surface (see U.S.P. 4,754,847; particularly Figures 1 and 5; column 6, lines 32-41).

Glaze does not teach how the differential housing surface and snorkel are fastened together.

Danjou et al. teaches a differential housing in which the differential housing is welded together and blanks are welded to the housing. Danjou et al. do not teach an particular method of welding (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Brownell et al., Walker et al., and Mahoney et al. all teach methods of fastening surfaces together by linear friction welding. In each of these references the surfaces have different shapes and different cross sections where they are joined. Brownell et al. teach that their method keeps the weld within a fillet radius (see U.S.P. 6,095,402; particularly Figure 6; column 2, lines 7-12; column 6, lines 15-18). Walker et al. teach

that their method provides reduced stress on the weld and prevents flash (see U.S.P. 6,106,233; particularly Figure 3; column 3, lines 1-52). Mahoney et al. teach that their process is precise, low in cost, and less labor intensive (see U.S.P. 6,237,834; particularly Figure 2; column 1, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Glaze by those of Danjou et al. and Brownell et al., Walker et al., or Mahoney et al. One would have been motivated to do so in order to provide a means of fastening the differential housing surface and the snorkel together by using welding as a fastening means, as taught by Danjou et al. One would have been motivated to use the welding methods taught by Brownell et al., Walker et al., or Mahoney et al. as specific welding means for fastening the parts and also to use a welding method that provides reduced stress for the weld and prevents flash during welding, as Walker et al. teach, to use a welding method that keeps the weld within a fillet radius, as Brownell et al. teach, or to use a welding method that is precise, low in cost, and less labor intensive, as Mahoney et al. teach.

In regards to product claims 11-20, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a snorkel by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

6. Claims 1-3 and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Gale (U.S.P. 1,323,178).

Stewart et al. teach a differential housing that is made by fitting two blank surfaces together and then welding the surfaces together. Stewart et al. also teach that an additional blank surface, particularly a channel stamping, can be fitted and welded to the interior of the housing (see U.S.P. 4,221,138; particularly Figures 2, 5, and 7; column 1, lines 6-11; column 3, lines 6-38).

Stewart et al. do not teach a specific welding method.

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178; particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Stewart et al. by those of Gale. One would have been motivated to use the welding method taught by Gale as a specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-18, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found

Art Unit: 1725

a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Gale (U.S.P. 1,323,178) as applied to claims 1-3, and 11-18 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 7.

However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

8. Claims 1, 6, 8, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al. (U.S.P. 4,221,138) in view of Larsen (U.S.P. 4,552,609).

Stewart et al. teach a differential housing that is made by fitting two blank surfaces together and then welding the surfaces together. Stewart et al. also teach that an additional blank surface, particularly a channel stamping, can be fitted and welding to the interior of the housing (see U.S.P. 4,221,138; particularly Figures 2, 5, and 7; column 1, lines 6-11; column 3, lines 6-38).

Stewart et al. do not teach a specific welding method.

Larsen teaches a process of friction welding surfaces together in which one surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Stewart et al. by those of Larsen. One would have been motivated to use the welding method taught by Larsen as a specific welding means for fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-18, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

9. Claims 1-3, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Gale (U.S.P. 1,323,178).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welding to the differential housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Gale teaches a process of welding surfaces together, particularly asymmetrical surfaces with different cross sections without preheating, by creating an electric potential between surfaces to be welded when they are brought closely together so that an electric discharge, or sparking contact, is made. This electric discharge creates heat at the surfaces and allows the surfaces to be welded together (see U.S.P. 1,323,178;

Art Unit: 1725

particularly Figures 2, 3, and 5; page 1, lines 11-25, 44-48; page 2, lines 17-25, 39-42, 58-62; page 3, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Gale. One would have been motivated to use the welding method taught by Gale as a specific welding means for fastening the parts and also as a welding means for fastening parts of different cross section, as taught by Gale.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Gale (U.S.P. 1,323,178) as applied to claims 1-3, 9, and 11-19 above, and further in view of Cox (U.S.P. 2,911,516).

The former references teach the process as described above in section 10. However, these references do not teach that the surfaces are moved apart, moved back in proximity to one another, applied together, and then repeated until the surfaces are welded together.

Cox teaches a process of flash butt welding surfaces together in which the surfaces to be welded have an electrical potential between them and the surfaces are brought together. The surfaces are then spread apart. Cox teaches that this process is repeated until the surfaces are uniformly heated to a welding temperature and then the surfaces are forced together to complete the weld (see U.S.P. 2,911,516; particularly column 1, lines 27-37).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cox. One would have been motivated to do so in order to have provided a method of uniformly heating the surfaces to the welding temperature before fastening them together.

11. Claims 1, 6, 8, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al. (U.S.P. 5,442,977) in view of Larsen (U.S.P. 4,552,609).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welded to the differential housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Larsen teaches a process of friction welding surfaces together in which one

surface is rotated relative to another surface. Larsen teaches that this process allows for rotational friction welding in which the rotated part can be precisely oriented by its rotational position to the fixed surface, the welding process is low in cost, the welding process is uniform, and dissimilar metals may be welded together. Larsen rotates parts that are oblong and asymmetrical about a rotational axis (see U.S.P. 4,552,609; particularly Figure 10; column 1, lines 5-35; column 2, lines 10-18; column 5, lines 6-13).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Larsen. One would have been motivated to use the welding method taught by Larsen as a specific welding means for fastening the parts and also for providing a welding method that is low in cost, is uniform, and allows welding of dissimilar metals, as Larsen teaches.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

12. Claims 1, 6, 7, 9, and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danjou et al (U.S.P. 5,442,977) in view of Brownell et al. (U.S.P. 6,095,402), Walker et al. (U.S.P. 6,106,233), or Mahoney et al. (U.S.P. 6,237,834).

Danjou et al. teach a differential housing that is made by fitting a curved differential housing surface and other differential housing surfaces together and then joining the surfaces through welding. Danjou et al. also teach that additional blank surfaces, particularly flange portions, can be fitted and welding to the differential housing (see U.S.P. 5,442,977; particularly Figures 1 and 2; column 3, lines 9-44, 66-68; column 4, lines 1-3, 12-28).

Danjou et al. do not teach a specific welding method.

Brownell et al., Walker et al., and Mahoney et al. all teach methods of fastening surfaces together by linear friction welding. In each of these references the surfaces have different shapes and different cross sections where they are joined. Brownell et al. teach that their method keeps the weld within a fillet radius (see U.S.P. 6,095,402; particularly Figure 6; column 2, lines 7-12; column 6, lines 15-18). Walker et al. teach that their method provides reduced stress on the weld and prevents flash (see U.S.P. 6,106,233; particularly Figure 3; column 3, lines 1-52). Mahoney et al. teach that their process is precise, low in cost, and less labor intensive (see U.S.P. 6,237,834; particularly Figure 2; column 1, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the teachings of Danjou et al. by those of Brownell et al., Walker et al., or Mahoney et al. One would have been motivated to use the welding methods taught by Brownell et al., Walker et al., or Mahoney et al. as

specific welding means for fastening the parts and also to use a welding method that provides reduced stress for the weld and prevents flash during welding, as Walker et al. teach, to use a welding method that keeps the weld within a fillet radius, as Brownell et al. teach, or to use a welding method that is precise, low in cost, and less labor intensive, as Mahoney et al. teach.

In regards to product claims 11-19, it appears that the instantly claimed product by process is the same as that which is claimed (a differential housing surface joined to a blank surface by flash butt welding or frictional welding). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

13. Claims 1 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior (AAP) art.

In the applicant's disclosure, the applicant notes AAP (see Figures 1A and 1) wherein a curved differential housing and a snorkel are fitted together and then welded with an arc. This process would have the property of generating heat from at least one of the surfaces at their interface because the arc would quickly heat both parts and cause heat to flow between the parts at their interface through conduction, convection, and/or radiative transfer. This heat created by the arc would be sufficient to weld the surfaces together, as shown in Figures 1A and 1.

It would have been obvious to one of ordinary skill in the art that the steps of welding and applying the surfaces together, as cited by the applicant, could be conducted in any sequence as the steps are a list of steps and not a specific sequence of steps. This interpretation is apparent when considering the electric arc butt welding process cited by the applicant (see claims 2-4 and 12-14), wherein heat can be generated between the surfaces before they contact, versus the friction welding process cited by the applicant (see claims 6 and 16), wherein heat can only be generated between the surfaces after they contact.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuchuk-Yatsenko et al. (U.S.P. 4,733,044), Tonelli (U.S.P.

3,251,127), and Reed (U.S.P. 1,828,340) are cited of interest for illustrating the state of the art in flash welding and friction welding processes.

Response to Arguments

16. Applicant's arguments filed 10 February 2003 have been fully considered but they are not persuasive.

The applicant makes the argument that there is no suggestion or motivation to combine the references noted above in the rejection. Particularly, the applicant argues that there is no suggestion or motivation to combine Danjou et al. with the teachings of Glaze et al. As noted above, Glaze et al. do not teach a method for connecting a snorkel to a differential housing. However, Danjou et al. teach that a differential housing and blanks are connected by welding, providing motivation to use welding as a means for connecting the snorkel and differential housing taught by Glaze et al. Danjou et al. does not teach a specific welding method, leaving the teaching of a welding process broad and open. Stewart et al. is the same in that it teaches that a differential housing and blank surface can be welded together, but does not teach a specific welding method and leaves the teaching of a welding process broad and open.

The additional references of Gale, Cox, Larsen, Brownell et al., Walker et al., and Mahoney et al. are relied upon to teach specific types of welding structures together. As noted above in the rejection, each of these references provides a motivation to combine with the respective teachings in each rejection. In particular, Gale teaches a method that is suitable for fastening parts of different cross section, Cox teaches a method of uniformly heating work surfaces to a welding temperature before welding, Larsen

teaches a uniform process that is low in cost and allows welding of dissimilar metals, Brownell et al. teaches a process that keeps the weld within a fillet radius, Walker et al. teaches a process that provides reduced stress for the weld and prevents flash during welding, and Mahoney et al. teach a process that is precise, low in cost, and less labor intensive. Each of these references also provides motivation to use a specific type of welding since when welding is actually practiced a specific type of process must be selected, whether it is resistance welding, arc welding, flash butt welding, friction welding, laser welding, or another type since there really is no type that is simply "welding"; each method of welding falls within a category. The applicant does not provide arguments why these motivations do not suffice for providing reason to combine the references noted above in the rejection. Nor does the applicant provide arguments for why the references would teach away from one another or could not be combined on a technical basis. The applicant does argue that the teachings of Danjou et al. and Stewart et al. for using welding to connect differential housings and blanks teaches away from further using a specific type of welding. The examiner disagrees with this in that the teachings of Danjou et al. and Stewart et al. are broad teachings of using welding and are open to further limitation to a specific type of welding since neither reference limits the teaching of welding or the features of their respective process to a specific type of welding.

The applicant argues that the teachings of Cox are non-analogous to the other references cited above for the welding of differential housing and blanks. In response to applicant's argument that Cox is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be

Art Unit: 1725

reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Cox is in the field of the applicant's endeavor, which is flash butt welding two workpieces together.

The applicant also argues that Cox does not teach all of the limitations cited by the applicant, particularly those of claim 4. As noted above in the rejection, Cox does teach these limitations in column 1, lines 27-37; particularly that an electrical potential is drawn between the two surfaces, the surfaces are brought together, the surfaces are spread apart, and that this process is repeated until heating is uniform to a welding temperature and then the surfaces are forced together to form a weld.

The applicant argues on page 3 of their response that in the rejection of claims 1, 6, and 8-20 over Glaze et al. in view of Danjou et al. and Larsen that Danjou et al. is relied upon to provide motivation for friction welding and welding by electricity. This statement is incorrect because Larsen is the reference that teaches friction welding and provides motivation for using friction welding. The examiner further notes that claims in this group regarding electric welding are product by process claims, as noted in the rejection above.

The applicant argues that the Applicant's Admitted Prior art of arc welding a differential housing and a snorkel together do not teach the generation of heat from the welding surfaces since an arc produces the heat for welding. However, as noted above in the rejection, arc welding would cause rapid heating of the surfaces which would in turn emit and radiate heat that is sufficient for welding. The examiner notes that the claims cited by the applicant have to be interpreted in their broadest sense and in this broadest sense the Applicant's Admitted Prior art does read upon the cited limitations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Application/Control Number: 09/779,961
Art Unit: 1725

Page 22

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



April 10, 2003

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GROUP 320

1725